

Exporting six degree of freedom data

Exporting 6 DOF Data

Exporting 6 degree of freedom data to an ASCII format as either an

ORIGIN and QUATERNION

OR

ORIGIN and 3×3 ROTATION MATRIX

Exported File Format

Visual3D loads 6 degree of freedom from ASCII data files with the following formats.

Rotation Matrix Based

	filename	filename	filename	filename	filename	filename	filename	filename	filename	filename	filename	filename
TIME	ORIGIN	ORIGIN	ORIGIN	ROTATION	ROTATION	ROTATION	ROTATION	ROTATION	ROTATION	ROTATION	ROTATION	ROTATION
FRAME_NUMBERS	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED
ORIGINAL	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1
ITEM 0	X	Y	Z	0	1	2	3	4	5	6	7	8
1	0.0	0.564162	0.002198	0.086599	0.648289	-0.680243	-0.342039	0.259806	-0.224631	0.939171	-0.715696	-0.697719
2	0.032	0.569361	0.004844	0.081942	0.712005	-0.652892	-0.258418	0.255689	-0.101686	0.961396	-0.653967	-0.750593

The Origin is at the Proximal End of the Segment

The Rotation matrix is represented as

	0	1	2
[R]=	3	4	5
	6	7	8

Quaternion Based

	filename	filename	filename	filename	filename	filename	filename
TIME	ORIGIN	ORIGIN	ORIGIN	QUATERNION	QUATERNION	QUATERNION	QUATERNION
FRAME_NUMBERS	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED	LINK_MODEL_BASED
ORIGINAL	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1	BODY1
ITEM 0	X	Y	Z	0	1	2	3
1	0.0	0.9782	0.5654	-1.0257	0.298	-0.6755	0.2496
2	0.032	0.9782	0.5654	-1.0257	0.298	-0.6755	0.2496

The file format is column based. Additional rigid bodies can be added as new columns with the same format.

Example 1

Exporting the position and orientation of segment RFT as an ORIGIN and Quaternion

Export_Data_To_Ascii_File ! /FILE_NAME=

/SIGNAL_TYPES=FRAME_NUMBERS+LINK_MODEL_BASED+LINK_MODEL_BASED

/SIGNAL_NAMES=TIME+ORIGIN+QUATERNION /SIGNAL_FOLDER=ORIGINAL+RFT+RFT !

/START_LABEL= ! /END_LABEL= ! /USE_POINT_RATE=FALSE ! /NORMALIZE_DATA=FALSE !

/NORMALIZE_POINTS=101 ! /EXPORT_MEAN_AND_STD_DEV=FALSE ! /USE_P2D_FORMAT=FALSE ;

Exporting the position and orientation of segment RFT as an ORIGIN and Rotation

Export_Data_To_Ascii_File ! /FILE_NAME=

/SIGNAL_TYPES=FRAME_NUMBERS+LINK_MODEL_BASED+LINK_MODEL_BASED

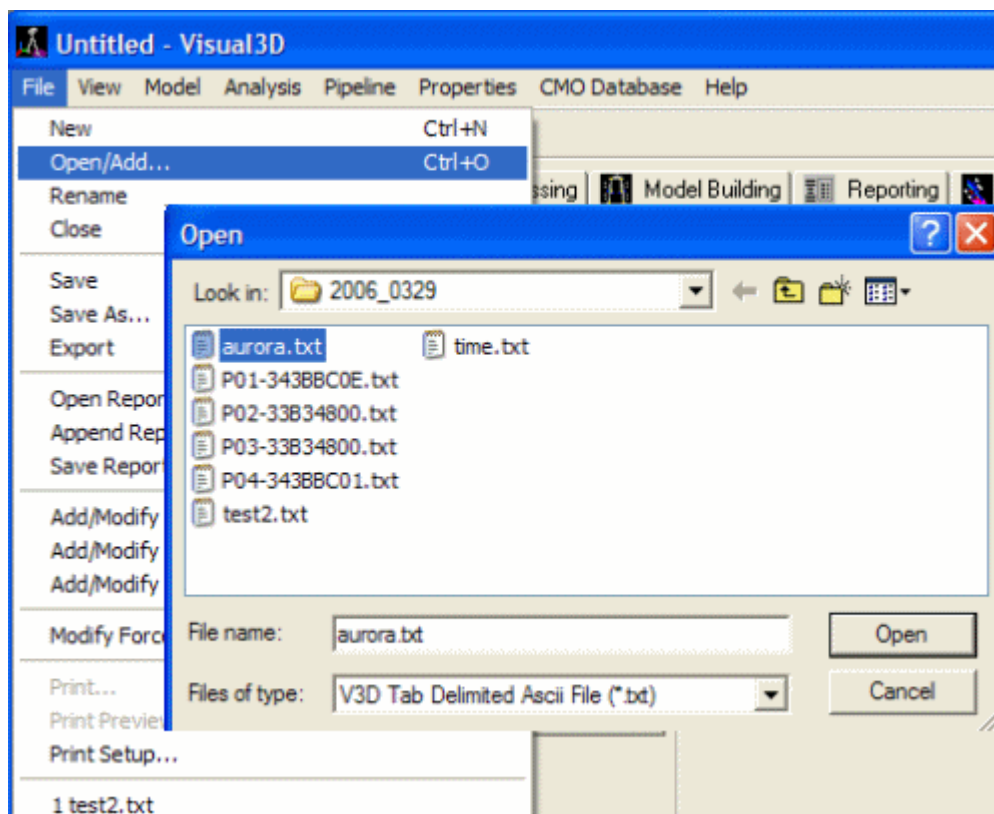
/SIGNAL_NAMES=TIME+ORIGIN+ROTATION /SIGNAL_FOLDER=ORIGINAL+RFT+RFT ! /START_LABEL=

! /END_LABEL= ! /USE_POINT_RATE=FALSE ! /NORMALIZE_DATA=FALSE ! /NORMALIZE_POINTS=101 !

/EXPORT_MEAN_AND_STD_DEV=FALSE ! /USE_P2D_FORMAT=FALSE ;

Example 2

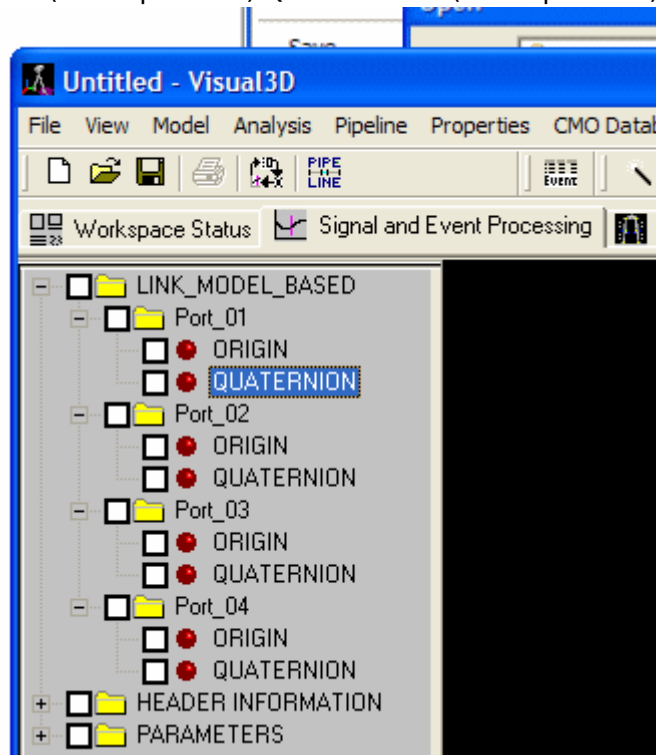
Open the text file that was just created. Select File → Open. Select the viewer for .txt files. Select “aurora.txt”.



The file will be loaded into memory. The Aurora file contains position and rotation data for a rigid

body. It will appear in Visual3D as LINKMODEL_BASED items containing the

ORIGIN (3 components) QUATERNION (4 components).

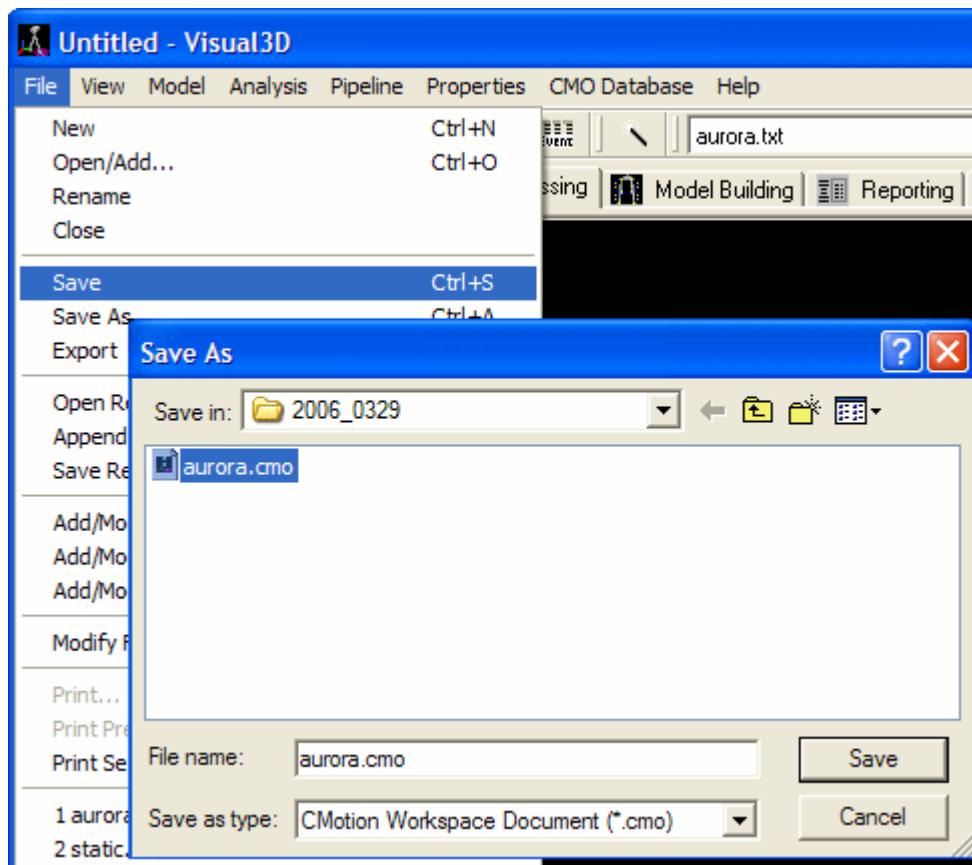


Visual3D typically works with motion capture markers, so to maximize your ability to work with this data, you can create a set of 3 targets per rigid body using the following command.

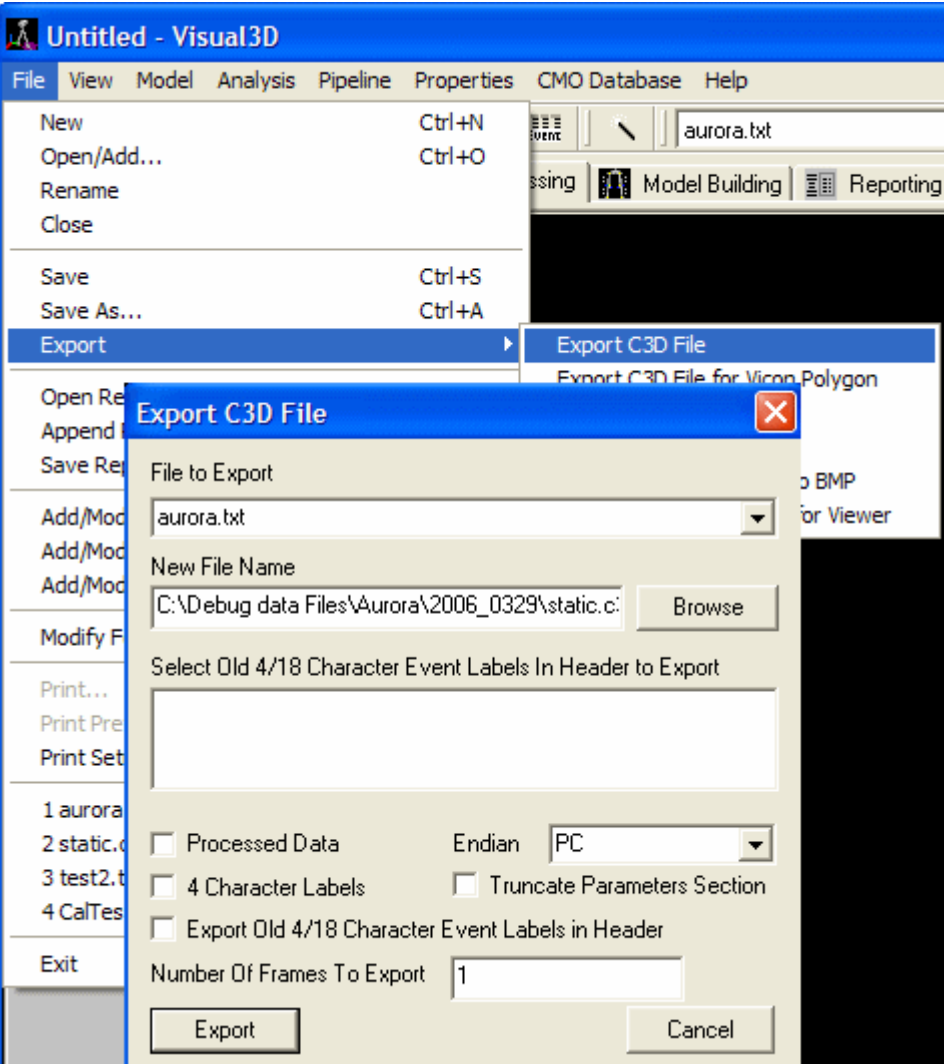
Create_Targets_For_LinkModelBased_Rotations

/SIGNAL_FOLDERS=Port_01+Port_02+Port_03+Port_04 ; Targets for each rigid body should appear in the data tree.

It is possible to save this data to a C3D formatted file, but the LINK MODEL data (e.g. the ORIGINAL Translation and Quaternion will be lost, so it is recommended that you save this data to a cmo file.



If you need a static trial for modeling the data, you can save the first frame of data to a c3d file.



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